



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,271	05/01/2006	Dirk-Jan Van Manen	WGEC/0037	5653
28116	7590	11/15/2007		
WESTERNGECO L.L.C. PO BOX 2469 HOUSTON, TX 77252-2469			EXAMINER HUGHES, DEANDRA M	
			ART UNIT 3663	PAPER NUMBER
			MAIL DATE 11/15/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/501,271

**Applicant(s)**

VAN MANEN ET AL.

**Examiner**

Deandra M. Hughes

**Art Unit**

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/9/04; 1/16/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Double Patenting***

1. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 14, 22, and 28 of copending Application No. 10/531,000. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are merely broader in that they do not specify that the processing is done in the common shot domain.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Drawings***

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 13 is objected to because of the following informalities: in the last line "defined in any" should be "defined in". Appropriate correction is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 8, the phrase "the wavenumber-dependent calibration filter *being to calibrate*" (emphasis added) is indefinite because it does not positively recite the calibration step.

With regard to claim 9, Claim 1, the claim upon which dependent claim 9 is based, states "selecting a first portion of the seismic data containing only events arising from critical refraction of seismic energy." Claim 9 states "that the seismic data contains substantially only critical refraction events." The phrase "substantially only" is broader than "only". Therefore the subject matter is not distinctly claimed.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Admitted prior art (Schalkwijk).

Admitted prior art-Schalkwijk discloses an apparatus for processing multi-component seismic data to determine a calibration filter for calibrating a 1st component of the seismic data relative to 2<sup>nd</sup> component of the seismic data, the apparatus comprising:

- means for selecting a 1<sup>st</sup> portion of the seismic data (primary reflection; pg. 5, line 3, 2nd paragraph of specification) in which the 1<sup>st</sup> arrival contains only upwardly propagating seismic energy above the seafloor (note primary reflection ray path of #9 of fig. 1); and
- means for determining a 1<sup>st</sup> calibration filter from the 1<sup>st</sup> portion of the seismic data (pg. 5, last 4 lines of 2nd paragraph of applicant's specification).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nickel (US 6,574,563 filed Jun. 18, 1999) in view of Ilkelle (US 6,101,448 published Aug. 8, 2000).

Nickel discloses a method of processing multi-component seismic data obtained from seismic signals propagating in a medium, the method comprising the steps of:

- selecting a 1<sup>st</sup> portion of the seismic data corresponding to a 1<sup>st</sup> range (fig. 2, #12);
- determining a 1<sup>st</sup> calibration filter from the 1<sup>st</sup> portion of the seismic data (col. 4, lines 30-35);
- selecting a 2<sup>nd</sup> portion of the seismic data corresponding to a 2nd range different from the 1st wavenumber range (fig. 2, #14);
- determining a 2<sup>nd</sup> calibration filter from the 2<sup>nd</sup> portion of the seismic data (col. 4, lines 30-35);

Nickel does not specifically disclose that these ranges are wavenumber ranges and that the calibration filter is a wavelength calibration filter. However, Nickel clearly calculates his filters in the spatial frequency domain, as is well known in the art and determines wavenumber calibration filters to optimize the data sets. Further, these well known principles are taught by Ilkelle (e.g. see equations in col. 6, lines 50-65; (col. 5, line 50 through col. 6, line 25)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to process the seismic data in the spatial frequency range for the advantage of applying the spatial calibration filters and therefore optimizing the seismic data.

***Allowable Subject Matter***

10. If an appropriate terminal disclaimer is filed which obviates the Double Patenting rejection above, then claims 1-7, 11-14, 17, and 19-20 would be in condition for allowance.

11. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter. The prior art does not teach or make obvious *selecting a first portion of the seismic data containing only events arising from critical refraction of seismic energy* in conjunction with the other limitations of the claim.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Application/Control Number:  
10/501,271  
Art Unit: 3663

Page 7

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Deandra M Hughes  
Primary Examiner  
Art Unit 3663